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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,455	12/31/2003	Michael Swafford	50037.0237US01	4974
27488	7590	06/27/2006	EXAMINER	
MERCHANT & GOULD (MICROSOFT)			RUTZ, JARED IAN	
P.O. BOX 2903			ART UNIT	
MINNEAPOLIS, MN 55402-0903			PAPER NUMBER	
			2187	

DATE MAILED: 06/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/750,455	SWAFFORD ET AL.	
	Examiner	Art Unit	
	Jared I. Rutz	2187	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _____ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 11-30 is/are rejected.
- 7) ☒ Claim(s) 8-10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>4/8/2004</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-30 as originally filed are pending in the instant application. Of these, there are 3 independent claims and 27 dependent claims.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 4/8/2004 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. **Claims 11-20** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 11 is directed to "*A computer-readable medium having computer-executable components*". Page 5 lines 11-12 shows that the term computer readable media includes both storage media and communication media. Communication media is shown in page 5 lines 4-11 to include non-statutory subject matter, i.e. carrier waves, wireless signals and the like. Applicant is required to amend claims 11-20 to be directed to a computer storage medium having computer executable components. Computer storage media is defined in page 4 lines 17-26 to be limited to statutory subject matter.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. **Claims 2, 12, and 21-30** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. **Claim 2** recites the limitation "the heap" in line 1. There is insufficient antecedent basis for this limitation in the claim. Claim 1 does not recite a heap.

8. **Claim 12** recites the limitation "the heap" in line 2. There is insufficient antecedent basis for this limitation in the claim. Claim 11 does not recite a heap.

9. **Claim 21** recites the limitation "the allocable memory block" in lines 6, 6-7, 7, 9, and 11. There is insufficient antecedent basis for this limitation in the claim. Claim 21 recites "an allocable memory block" in line 1, but also recites "allocable memory blocks" in lines 3-4.

10. **Claims 22-30** are rejected due to their dependence on claim 21.

11. **Claim 23** recites the limitation "*the allocable memory block*". There is insufficient antecedent basis for this limitation in the claim. Claim 21 recites "an allocable memory block" in line 1, but also recites "allocable memory blocks" in lines 3-4.

12. **Claim 25** recites the limitation "*the allocable memory block*". There is insufficient antecedent basis for this limitation in the claim. Claim 21 recites "an allocable memory block" in line 1, but also recites "allocable memory blocks" in lines 3-4.

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13. **Claim 27** recites the limitation "*the allocable memory block*". There is insufficient antecedent basis for this limitation in the claim. Claim 21 recites "an allocable memory block" in line 1, but also recites "allocable memory blocks" in lines 3-4.

14. **Claim 29** recites the limitation "*the allocable memory block*". There is insufficient antecedent basis for this limitation in the claim. Claim 21 recites "an allocable memory block" in line 1, but also recites "allocable memory blocks" in lines 3-4.

15. **Claim 30** recites the limitation "*the allocable memory block*". There is insufficient antecedent basis for this limitation in the claim. Claim 21 recites "an allocable memory block" in line 1, but also recites "allocable memory blocks" in lines 3-4.

Claim Rejections - 35 USC § 102

16. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

17. **Claims 1-2, 5-7, 11-12, and 15-17** are rejected under 35 U.S.C. 102(b) as being anticipated by Voigt (US 6,092,168).

18. **Claim 1** is taught by Voigt as:

a. *A method for providing overwrite detection for an allocable memory block comprising: receiving a request for performing one of requesting the allocable memory block, requesting the size of the allocable memory block, and freeing the allocable memory block.* Column 4 lines 16-18 shows deallocating a storage space.

b. *Generating an overwrite detection pattern for the allocable memory block.* Column 4 lines 18-20 shows that the pattern generator generates the predefined data pattern. Column 3 lines 19-28 show that the predefined data pattern is to show that the associated storage space has been deallocated.

c. *And storing the overwrite detection pattern in the allocable memory block.* Column 3 lines 20-22 shows that the host writes the predefined data pattern to the designated storage space.

19. **Claim 2** is taught by Voigt as:

d. *The method of claim 1, further comprising examining the heap to determine whether the overwrite detection pattern has been overwritten.* For the purpose of this Office action, the Examiner will interpret the term “*the heap*” as “*the allocable memory block*” in light of the 35 USC 112 second paragraph discussed *supra*. Column 5 lines 57-66 shows the storage manager reading data blocks to determine if the blocks contain the predefined data pattern.

20. **Claim 5** is taught by Voigt as:

e. *The method of claim 1, wherein the overwrite detection pattern is written at the end of the allocable memory block. Column 5 lines 15-20 shows that the predetermined data pattern fills the whole block of memory when the block of memory is deallocated.*

21. **Claim 6** is taught by Voigt as:

f. *The method of claim 1, wherein a logical function of the elements within the overwrite detection pattern provides a predetermined result. Examples of the predefined data pattern are shown in column 3 lines 26-31. Whatever the choice of predefined data pattern, logically ANDing the pattern with 0 will produce 0, which is a predetermined result.*

22. **Claim 7** is taught by Voigt as:

g. *The method of claim 1, wherein the overwrite detection pattern is written within an area of the allocable memory block that is used for alignment purposes. Column 5 lines 15-20 shows that the predetermined data pattern fills the whole block of memory when the block of memory is deallocated.*

23. **Claim 11** is taught by Voigt as:

h. *A computer-readable medium having computer-executable components for overwrite detection within an allocable memory block comprising: a first component that is arranged to receive a request for performing one of requesting*

the allocable memory block, requesting the size of the allocable memory block, and freeing the allocable memory block. Column 4 lines 16-18 shows the host deallocating a storage space.

i. *A second component that is arranged to generate an overwrite detection pattern for the allocable memory block.* Column 4 lines 18-20 shows that the pattern generator generates the predefined data pattern.

j. *And a third component that is arranged to store the overwrite detection pattern in the allocable memory block.* Column 3 lines 20-22 shows that the host writes the predefined data pattern to the designated storage space.

24. **Claim 12** is taught by Voigt as:

k. *The computer-readable medium of claim 11, further comprising an examination component that is arranged to examine the heap to determine whether the overwrite detection pattern has been overwritten.* For the purpose of this Office action, the Examiner will interpret the term “*the heap*” as “*the allocable memory block*” in light of the 35 USC 112 second paragraph discussed *supra*. Column 5 lines 57-66 shows the storage manager reading data blocks to determine if the blocks contain the predefined data pattern.

25. **Claim 15** is taught by Voigt as:

l. *The computer-readable medium of claim 11, wherein the overwrite detection pattern is written at the end of the allocable memory block.* Column 5

lines 15-20 shows that the predetermined data pattern fills the whole block of memory when the block of memory is deallocated.

26. **Claim 16** is taught by Voigt as:

m. *The computer-readable medium of claim 11, wherein a logical function of the elements within the overwrite detection pattern provides a predetermined result.* Examples of the predefined data pattern are shown in column 3 lines 26-31. Whatever the choice of predefined data pattern, logically ANDing the pattern with 0 will produce 0, which is a predetermined result.

27. **Claim 17** is taught by Voigt as:

n. *The computer-readable medium of claim 11, wherein the overwrite detection pattern is written within an area of the allocable memory block that is used for alignment purposes.* Column 5 lines 15-20 shows that the predetermined data pattern fills the whole block of memory when the block of memory is deallocated.

Claim Rejections - 35 USC § 103

28. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

29. **Claims 3-4** are rejected under 35 U.S.C. 103(a) as being unpatentable over Voigt (cited *supra*) in view of March et al. (US 2003/0120858).

30. **Claim 3** is taught by Voigt as shown *supra* with respect to claim 1.

31. Claim 3 is taught by March as:

- o. *The method of claim 1, further comprising performing a checksum on the allocable memory block and storing the results of the checksum within the allocable memory block.* Paragraph 0033 lines 1-5 teaches generating an ECC for memory cells. Figure 2 shows that the ECC is stored in the memory block.

32. Voigt and March are analogous art because they are from the same field of endeavor, computer data storage.

33. At the time of the invention it would have been obvious to a person of ordinary skill in the art to include a checksum in the form of an ECC with the data storage system of Voigt.

34. The motivation would have been that ECC allows errors in the memory to be detected and corrected, Voigt paragraph 0034.

35. Therefore, it would have been obvious to combine March with Voigt for the benefit of detecting and correcting errors to obtain the invention as specified in **claims 3-4**.

36. **Claim 4** is taught by March as:

p. *The method of claim 3, further comprising examining the results of the checksum to determine the presence of memory errors.* Paragraph 0034 shows that when data is retrieved from the memory cells, the ECC is checked to determine if there are errors present.

37. **Claims 13-14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Voigt (cited *supra*) in view of March et al. (cited *supra*).

38. **Claim 13** is taught by Voigt as shown *supra* with respect to claim 11.

39. Claim 13 is taught by March as:

q. *The computer-readable medium of claim 11, further comprising a checksum component that is arranged to perform a checksum on the allocable memory block and storing the results of the checksum within the allocable memory block.* Paragraph 0033 lines 1-5 teaches generating an ECC for memory cells. Figure 2 shows that the ECC is stored in the memory block.

40. Voigt and March are analogous art because they are from the same field of endeavor, computer data storage.

41. At the time of the invention it would have been obvious to a person of ordinary skill in the art to include a checksum in the form of an ECC with the data storage system of Voigt.

42. The motivation would have been that ECC allows errors in the memory to be detected and corrected, Voigt paragraph 0034.

43. Therefore, it would have been obvious to combine March with Voigt for the benefit of detecting and correcting errors to obtain the invention as specified in **claims 13 and 14**.

44. **Claim 14** is taught by March as:

r. *The computer-readable medium of claim 13, further comprising a checksum examination component that is arranged to examine the results of the checksum to determine the presence of memory errors.* Paragraph 0034 shows that when data is retrieved from the memory cells, the ECC is checked to determine if there are errors present.

45. **Claims 21 and 25-27** are rejected under 35 U.S.C. 103(a) as being unpatentable over Voigt (cited *supra*). The Microsoft Computer Dictionary is cited as an evidentiary reference for the usage of heaps.

46. **Claim 21** is taught by Voigt as

s. *A system for overwrite detection in an allocable memory block, comprising a memory allocator that is arranged to receive a request for performing one of requesting the allocable memory block, requesting the size of the allocable memory block, and freeing the allocable memory block.* Column 4 lines 16-18 shows the host deallocating a storage space.

t. *A pattern generator that is arranged to generate an overwrite detection pattern for the allocable memory block.* Column 4 lines 18-20 shows that the pattern generator generates the predefined data pattern.

u. *And an allocable memory block formatter that is arranged to store the overwrite detection pattern in the allocable memory block.* Column 3 lines 20-22 shows that the host writes the predefined data pattern to the designated storage space.

47. Voigt does not expressly disclose that the storage system contains a heap.

48. The Microsoft Computer Dictionary teaches that a heap is a portion of memory reserved for a program to use for the temporary storage of data structures whose existence or size cannot be determined until the program is running.

49. At the time of the invention it would have been obvious to a person of ordinary skill in the art that the host would include a heap in the operating memory of the host.

50. The motivation would have been that the host is disclosed as having an operating system, such as Windows NT, and that programs executing on the host would create a heap area for storing temporary data during program execution.

51. Therefore, it would have been obvious that the system of Voigt would include a heap to obtain the invention as specified in **claims 21 and 25-27**.

52. **Claim 25** is taught by Voigt as:

v. *The system of claim 21, wherein the overwrite detection pattern is written at the end of the allocable memory block.* Column 5 lines 15-20 shows that the

predetermined data pattern fills the whole block of memory when the block of memory is deallocated.

53. **Claim 26** is taught by Voigt as:

w. *The system of claim 21, wherein a logical function of the elements within the overwrite detection pattern provides a predetermined result. Examples of the predefined data pattern are shown in column 3 lines 26-31. Whatever the choice of predefined data pattern, logically ANDing the pattern with 0 will produce 0, which is a predetermined result.*

54. **Claim 27** is taught by Voigt as:

x. The system of claim 21, wherein the memory overwrite detection pattern is written within an area of the allocable memory block that is used for alignment purposes. Column 5 lines 15-20 shows that the predetermined data pattern fills the whole block of memory when the block of memory is deallocated.

55. **Claims 23-24** are rejected under 35 U.S.C. 103(a) as being unpatentable over Voigt (cited *supra*) in view of March et al. (cited *supra*).

56. **Claim 23** is taught by Voigt as shown *supra* with respect to claim 1.

57. Claim 23 is taught by March as:

y. *The system of claim 21, further comprising a memory verification system that is arranged to perform a checksum on the allocable memory block and storing the results of the checksum within the allocable memory block.*

Paragraph 0033 lines 1-5 teaches generating an ECC for memory cells. Figure 2 shows that the ECC is stored in the memory block.

58. Voigt and March are analogous art because they are from the same field of endeavor, computer data storage.

59. At the time of the invention it would have been obvious to a person of ordinary skill in the art to include a checksum in the form of an ECC with the data storage system of Voigt.

60. The motivation would have been that ECC allows errors in the memory to be detected and corrected, Voigt paragraph 0034.

Therefore, it would have been obvious to combine March with Voigt for the benefit of detecting and correcting errors to obtain the invention as specified in **claims 23-24**.

61. **Claim 24** is taught by March as:

z. *The system of claim 23, further comprising a memory verification system that is arranged to examine the results of the checksum to determine the presence of memory errors.* Paragraph 0034 shows that when data is retrieved from the memory cells, the ECC is checked to determine if there are errors present.

Allowable Subject Matter

62. **Claims 8, 9, and 10** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

63. **Claims 18, 19, and 20** would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 101, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

64. **Claims 28, 29, and 30** would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

65. **Claims 8, 18, and 28** recite the limitation "*wherein the overwrite detection pattern is checked and an access violation is forced if the overwrite detection pattern has been modified.*" This limitation is taught by the specification at page 11 lines 5-8. This limitation is not taught by the prior art of record. In the system of Voigt, when the pattern is detected, the system determines that the block has been deallocated.

66. **Claim 9** recites the limitation "*further comprising storing a heap index for the allocable memory block within the allocable memory block wherein the heap index points to one of a plurality of heaps*". This limitation is taught by the specification at page 7 lines 27-30. This limitation is not taught by the prior art of record.

67. **Claim 19** recites the limitation "*further comprising an indexing component that is arranged to store a heap index for the allocable memory block within the allocable*

memory block wherein the heap index points to one of a plurality of heaps". This limitation is taught by the specification at page 7 lines 27-30. This limitation is not taught by the prior art of record.

68. **Claim 29** recites the limitation "*further comprising a memory indexing system that is arranged to store a heap index for the allocable memory block within the allocable memory block wherein the heap index points to one of a plurality of heaps*". This limitation is taught by the specification at page 7 lines 27-30. This limitation is not taught by the prior art of record.

69. **Claims 10, 20, and 30** recite the limitation "*wherein the timestamp indicates the time when one of requesting and freeing the allocable memory block is performed*". This limitation is taught by the specification at page 7 lines 27-30. This limitation is not taught by the prior art of record.

Conclusion

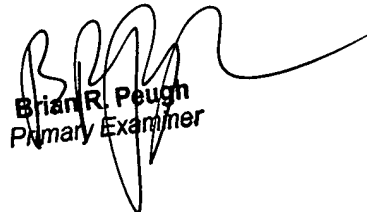
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jared I. Rutz whose telephone number is (571) 272-5535. The examiner can normally be reached on M-F 8:00 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Sparks can be reached on (571) 272-4201. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jared I Rutz
Examiner
Art Unit 2187

jir


Brian R. Peugh
Primary Examiner